REMARKS

Within Section 3 of the outstanding Office Action, the Examiner raises the objection that the subject matter of the independent claims (claim 21 & claim 30) is obvious due to the combination of a newly cited printed publication by Tkach and a newly cited U.S. Patent Application Publication No. 2003/0142395 to MacCormack. The Examiner admits that Tkach does ***not*** disclose applicants' claimed feature that the gain control signal is at a higher wavelength than any of the optical input signal channels, but states that various circumstances would lead to the gain control signal being at a higher wavelength than the optical input signal and, hence, the claimed subject matter is obvious.

The Examiner's rejection is therefore based on a skilled person making a mistake, or the equipment malfunctioning, or the room temperature changing, or some other accidental or unintentional error, or some unforeseen or imagined event. Applicants respectfully submit that the Examiner's entire reasoning is based on sheer ***speculation***.

More specifically, within Section 3 of the Office Action, the Examiner suggests that a person setting up the Brillouin amplifier disclosed by Tkach would "accidentally or unintentionally" result in the subject matter of the present invention. The Examiner cites MacCormack as disclosing that if a pump laser is not controlled, then its wavelength can vary from its intended operating point due to fluctuations in temperature. The Examiner's suggestions are respectfully refuted.

Firstly, it is noted that MacCormack relates to a particular specific type of pump laser, one which is relatively unstable with temperature. In particular, MacCormack describes the drift with temperature of the wavelength of a pump laser diode, which is used to pump a particular type

of amplifier configuration at a wavelength of between 910-980 nanometers, i.e., 0.91-0.98 micrometers, as described in paragraph [0007].

The Examiner indicates that the gain control signal for Tkach should be extremely close in wavelength (according to the Examiner, less than one nanometer). As Tkach describes that the normal operating wavelength being used is around 1.5 micrometers, it is submitted that the laser diode described in MacCormack (which has particular temperature drift problems) would ***not***, in any case, be suitable for pumping the Brillouin amplifier shown in Figure 2 of Tkach due at least to its normal operating wavelength.

Secondly, it is noted that Tkach explicitly indicates the requirement for ***precise tuning*** of the pump laser, and even suggests that ***active frequency locking of the pump laser is required*** in certain applications (final paragraph, page S111).

A person setting up the Brillouin amplifier disclosed by Tkach would take knowledge of the teaching of the article. Thus, the person would ensure that the pump laser was correctly ***tuned*** and ***maintained*** at the correct frequency (probably prior to incorporation within the amplifier system), e.g., by active ***frequency locking*** of the pump laser. The person setting up the Brillouin amplifier disclosed by Tkach would be someone who possesses at least a small amount of skill in the relevant field (e.g., would have at least a very basic knowledge of optical research), and would take the necessary precautions to ensure that the laser operates correctly at the tuned frequency, as Tkach indicates is required.

Thus, the subject matter of the independent claims is both novel and inventive over the cited prior art. If anything, the newly cited art actually teaches away from the claimed invention.

Applicants respectfully submit that the Examiner's entire reasoning is based on imagined speculation, which is impermissible.

Wherefore, a favorable action is earnestly solicited.

Respectfully submitted,

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